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EXAMINER	
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ART UNIT	PAPER NUMBER
2136	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/601,374	CRAFT, DAVID JOHN	
	Examiner	Art Unit	
	Carlton V. Johnson	2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after t he mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-37* is/are pending in the application.

4a) Of the above claim(s) *1-21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responding to application papers filed on **3-13-2007**.

2. Claims **22 - 37** are pending. Claims **1 - 21** have been canceled. Claims **22 - 37** are new. Claims **22, 31** are independent.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim **22 - 27, 29 - 36** are rejected under 35 U.S.C. 102(e) as being anticipated by **Ellison et al.** (US Patent No. **7,082,615**).

Regarding Claim 22, Ellison discloses a secure processing system, comprising:

a) a main processor unit (MPU) coupled to a processor bus; (see Ellison Figure 1C: host (processor) bus; col. 4, lines 40-45: interface between processors and memory, I/O controller)

b) an attached processor complex (APC) coupled to the processor bus and comprising: a local store configured to store computer instructions and data; (see

Ellison col. 4, lines 63-65; col. 3, lines 45-47: load code and data (software), local store)

c) an attached processor unit (APU) coupled to the local store; wherein the APC is configured to receive commands from the MPU via the processor bus, to store a cryptographic master key (see Ellison col. 4, lines 63-65: APU coupled to host (processor) bus; col. 6, lines 38-42: cryptographic key storage), and to operate in a non-isolated state and an isolated state; (see Ellison col. 4, lines 16-22: partitioned memory, isolated and non-isolated) and

d) wherein in response to a LOAD command received from the MPU (see Ellison col. 3, lines 43-45: load command initiated by processor), the APC is configured to transition from the non-isolated state to the isolated state (see Ellison col. 4, lines 16-22: partitioned memory, isolated and non-isolated), to partition the local store into a general access section accessible by the MPU and an isolated section accessible only by the APU, to transfer a set of computer instructions or data into the isolated section of the local store (see Ellison col. 3, lines 21-25; col. 3, lines 45-47: load code and data to isolated region), and to use the master key to extract and decrypt a portion of the computer instructions or data stored in the isolated section of the local store, thereby producing another cryptographic key. (see Ellison col. 10, lines 6-8; col. 9, lines 64-65; col. 10, lines 16-19: decryption (i.e. key) utilized loading image)

Regarding Claim 23, Ellison discloses the secure processing system as recited in claim 22, wherein secure processing is performed within the isolated section of the local store of the APC. (see Ellison col. 4, line 63 - col. 5, line 5: secure processing within isolated section, non-secure processing outside)

Regarding Claim 24, Ellison discloses the secure processing system as recited in claim 22, wherein the cryptographic master key stored in the APC is not accessible by the MPU. (see Ellison col. 6, lines 13-18: access restricted to isolated region)

Regarding Claim 25, Ellison discloses the secure processing system as recited in claim 22, wherein the cryptographic master key stored in the APC is unique to the secure processing system. (see Ellison col. 6, lines 64-66: unique cryptographic key (for platform) stored)

Regarding Claim 26, Ellison discloses the secure processing system as recited in claim 22, wherein when the APC is operating in the non-isolated state, the general access section occupies the entire local store. (see Ellison col. 6, lines 13-15: isolated addressing section only setup and defined when in isolated state)

Regarding Claim 27, Ellison discloses the secure processing system as recited in claim 22, wherein when the APC is operating in the isolated state, the APC is configured to respond to an EXIT command received from the MPU by clearing the

isolated section of the local store and eliminating the isolated section of the local store, thereby causing the general access section to occupy the entire local store. (see Ellison col. 5, lines 5-10; col. 3, lines 43-45: configuration commands, initialize or reset isolated region)

Regarding Claim 29, Ellison discloses the secure processing system as recited in claim 22, wherein the APC further comprises a bus interface unit (BIU) coupled to the processor bus, and wherein local store and the APU are coupled to the BIU. (see Ellison col. 4, lines 40-45: MCH (bus interface unit) coupled to host (processor) bus)

Regarding Claim 30, Ellison discloses the secure processing system as recited in claim 29, wherein the BIU comprises a load/exit state machine (LSEM) configured to store the cryptographic master key. (see Ellison col. 3, lines 21-25; col. 3, lines 45-47: load code and data to isolated region, state machine; col. 6, lines 38-42: store cryptographic key)

Regarding Claim 31, Ellison discloses a method for carrying out secure processing, comprising:

a) providing a main processor unit (MPU), a processor bus, (see Ellison Figure 1C: host (processor) bus; col. 4, lines 40-45: interface between processors and memory, I/O controller) and

b) an attached processor complex (APC), wherein the APC comprises a local store configured to store computer instructions and data and an attached processor unit (APU) coupled to the local store; (see Ellison col. 4, lines 63-65: attached processor (APU), isolated execution)

d) configuring the MPU to drive a LOAD command on the processor bus in the event secure processing is required; (see Ellison col. 5, lines 5-10; col. 3, lines 43-45: partitioning isolated region, initiation or configuration command)

e) coupling the MPU to the processor bus; (see Ellison Figure 1C: host (processor) bus; col. 4, lines 40-45: interface between processors and memory, I/O controller)

f) configuring the APC to receive the LOAD command via the processor bus, to store a cryptographic master key, and to operate in a non-isolated state and an isolated state; (see Ellison col. 5, lines 5-10; col. 4, lines 16-22: setup isolated and non-isolated states; col. 6, lines 38-42: store cryptographic key)

g) configuring the APC to respond to a received LOAD command by: transitioning from the non-isolated state to the isolated state; (see Ellison col. 5, lines 5-10: configure and setup (APU, LOAD command) isolated state)

h) partitioning the local store into a general access section accessible by the MPU and an isolated section accessible only by the APU; (see Ellison col. 4, lines 16-22: partition into isolated and non-isolated sections)

i) transferring a set of computer instructions or data into the isolated section of the local store; (see Ellison col. 7, lines 41-43: software to implement; col. 3, lines 21-25; col. 3, lines 45-47: load code or data into isolated region)

j) using the master key to extract and decrypt a portion of the computer instructions or data stored in the isolated section of the local store, thereby producing another cryptographic key; (see Ellison col. 10, lines 6-8; col. 9, lines 64-65; col. 10, lines 16-19: decryption (i.e. key) utilized loading image) and

k) coupling the APC to the processor bus. (see Ellison col. 5, lines 43-46: processor (APC) coupled to memory)

Regarding Claim 32, Ellison discloses the method as recited in claim 31, wherein the secure processing is carried out within the isolated section of the local store of the APC. (see Ellison col. 4, line 63 - col. 5, line 5: secure processing within isolated section)

Regarding Claim 33, Ellison discloses the method as recited in claim 31, wherein the cryptographic master key stored in the APC is not accessible by the MPU. (see Ellison col. 6, lines 13-18: access restricted to isolated region)

Regarding Claim 34, Ellison discloses the method as recited in claim 31, wherein the coupling of the MPU and the APC to the processor bus forms a processing system, and wherein cryptographic master key stored in the APC is unique to the processing system. (see Ellison col. 6, lines 64-66: unique cryptograph key (for platform) stored)

Regarding Claim 35, Ellison discloses the method as recited in claim 31, wherein when the APC is operating in the non-isolated state, the general access section occupies the entire local store. (see Ellison col. 6, lines 13-15: isolated section only exists when setup and executing)

Regarding Claim 36, Ellison discloses the method as recited in claim 31, further comprising: configuring the APC to respond to a received EXIT command when operating in the isolated state by: clearing the isolated section of the local store; and eliminating the isolated section of the local store, thereby causing the general access section to occupy the entire local store. (see Ellison col. 3, lines 43-45; col. 5, lines 5-10: command (i.e. instruction) processing, initiate/exit isolated mode; col. 6, lines 13-15: isolated section only exists when setup and executing)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim **28, 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ellison et al.** (US Patent No. **7,082,615**) in view of **Worley, JR et al.** (US PGPUB No. **20020194389**).

Regarding Claim 28, Ellison discloses the secure processing system as recited in claim 22, wherein the APC is configured to use the other cryptographic key to decrypt another set of computer instructions or data. (see Ellison col. 10, lines 6-8; col. 9, lines 64-65; col. 10, lines 16-19: decryption (i.e. key) utilized loading image) Ellison does not specifically disclose whereby to authenticate another set of computer instructions or data. However, Worley discloses wherein configured to authenticate another set of computer instructions or data. (see Worley paragraph [0049], lines 1-7; paragraph [0129], lines 9-15; paragraph [0139], lines 27-33: authentication code (instructions or data))

It would have been obvious to one of ordinary skill in the art to modify Ellison as taught by Worley to enable the capability to authenticate another set of computer instructions or data. One of ordinary skill in the art would have been motivated to employ the teachings of Worley in order to enable operational control of secure resources without exposing privilege instructions and registers. (see Worley paragraph [0020], lines 16-21: *" ... provide a set of secure-platform management services for operational control of hardware resources that neither expose privileged instructions and privileged registers of the hardware nor simulate privileged instructions and privileged registers. ... "*)

Regarding Claim 37, Ellison discloses the method as recited in claim 31, wherein the configuring the APC to respond to a received LOAD command comprises: configuring the APC to respond to a received LOAD command by:

a) transitioning from the non-isolated state to the isolated state; (see Ellison col. 5, lines 5-10; col. 3, lines 43-45: command processing, isolated region)

b) partitioning the local store into a general access section accessible by the MPU and an isolated section accessible only by the APU; (see Ellison col. 4, lines 16-22: partitioning memory, isolated and non-isolated regions)

c) transferring a set of computer instructions or data into the isolated section of the local store; (see Ellison col. 3, lines 21-25; col. 3, lines 45-47: load code or data into isolated region)

d) using the master key to extract and decrypt a portion of the computer instructions or data stored in the isolated section of the local store, thereby producing another cryptographic; (see Ellison col. 10, lines 6-8; col. 9, lines 64-65; col. 10, lines 16-19: decryption (i.e. key) utilized loading image) and

Ellison discloses wherein using the other cryptographic key to authenticate or decrypt another set of computer instructions or data. (see Ellison col. 10, lines 6-8; col. 9, lines 64-65; col. 10, lines 16-19: decryption (i.e. key) utilized loading image) Ellison does not specifically disclose whereby to authenticate another set of computer instructions or data.

However, Worley discloses:

e) to authenticate another set of computer instructions or data. (see Worley paragraph [0049], lines 1-7; paragraph [0129], lines 9-15; paragraph [0139], lines 27-33: authentication code (instructions or data))

It would have been obvious to one of ordinary skill in the art to modify Ellison as taught by Worley to enable the capability to authenticate another set of computer instructions or data. One of ordinary skill in the art would have been motivated to employ the teachings of Worley in order to enable operational control of secure resources without exposing privilege instructions and registers. (see Worley paragraph [0020], lines 16-21)

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlton V. Johnson whose telephone number is 571-270-1032. The examiner can normally be reached on Monday thru Friday , 8:00 - 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Carlton V. Johnson
Examiner
Art Unit 2136

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CVJ
May 21, 2007

5/29/07